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reliable solenoid testing system, and this would have been obvious to one of ordinary skill in the art at the time the invention was made.

23. As per claims 13-16 and 18-19, the use of metals such as the claimed "composite material", "steel", "aluminum" and "anodized aluminum" would all be features that would be obvious to one of ordinary skill in the art at the time the invention was made since they all represent metals and since solenoid valves are typically enclosed in a metallic housing, sometimes referred to as a manifold, and since the manifold should be able to withstand great pressure fluctuations so as to effectively test the solenoids in a safety system, a metallic means for enclosing the valves would be obvious and a strong metal would be obviously beneficial from a strength standpoint, and would therefore be an obvious choice for fabricating the manifold. Therefore, since the aforementioned metals are all well known in the art as being used on manifolds, per se, their incorporation into Smith would be equally obvious since they would afford the housing tremendous strength that could not otherwise be achieved. For at least these reasons, the aforementioned metals would have obviously been incorporated into Smith so as to fabricate a strong, durable protective housing for the solenoid valves.

***Allowable Subject Matter***

24. Claims 3-5 and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claims 3-5 and 21-23, specifically dependent claims 3 and 21, the prior art of record fails to teach or adequately suggest an apparatus including all of the claimed features or limitations as claimed by claims 1 and 2 (with regards to claim 3) and claim 20 (with regard to claim 21), in combination with a feature whereby the apparatus is operable in at least two discrete operation modes.

The first mode is a "1 out of 1 with hot stand by mode" and the other is a "2 out of 2 with high diagnostics mode". The "1 out of 1 with hot stand by mode" (1001-HS) causes a solenoid valve (first solenoid valve) to be actuated by an electromotive force provided by the logic control system during normal operations, while the other solenoid valve (second solenoid valve) remains de-energized and in a stand by state.

The "2 out of 2 with high diagnostics mode" (2002-D) a plant can retain the benefits of known "2 out of 2" configurations, but also helps to realize improved safety since the apparatus can be tested or maintained without being bypassed prior to initiation and testing. In this mode, when an unsafe condition is detected and a safety action is initiated, the process valve is actuated when both of the solenoid valves (first and second valve) are immediately de-energized thereby transferring the pneumatic supply to an exhaust port.

These particular operational modes, in combination with the other claimed features or limitations, are not taught by the prior art of record and for at least these reason(s), claims 3 and 21 are believed to be allowable over the prior art of record.

Claims 4-5 and 22-23 are allowable as both being dependent upon an allowed base claim (claims 3 and 21).

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**Conclusion**

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D. Hartman Jr. whose telephone number is (703) 308-7001. The examiner works Mon. – Fri., 10:30 am – 7:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Grant can be reached at (703) 308-1108.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9618.

**Any response to this action should be mailed to:**


Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

(703) 872-9306 (central fax location number)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Ronald D. Hartman Jr.  
Patent Examiner  
Art Unit 2121  
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12/12/03